

STS General Thoracic Surgery Database
Participant Performance for Lobectomy Compared to STS and NIS Databases

Participant 99999
STS Period Ending 12/31/2016

Table 1: Participant Performance for Lobectomy Compared to STS and NIS Databases¹

	Participant Last 3 Years Jan 2014 - Dec 2016	STS Last 3 Years Jan 2014 - Dec 2016	Nationwide Inpatient Sample (NIS) Most Recently Available Year Jan 2014 - Dec 2014
Discharge Mortality	Percent (95% CI)	Percent	Percent
Postoperative Length of Stay (Days)²	n= Median (Q1 , Q3) (,)	n= Median	n= Median
Minimally Invasive Lobectomy for Clinical Stage I Lung Cancer	Percent (95% CI)	Percent	

¹ Refer to the Report Overview for the Lobectomy Population inclusion details

² Computed time between the surgery date and discharge date

**STS General Thoracic Surgery Database
Lobectomy for Lung Cancer Composite Quality Rating**

**Participant 99999
STS Period Ending 12/31/2016**

Table 2: Lobectomy for Lung Cancer Composite Quality Rating

Quality Domain	Participant Score (95% CI)	STS Mean Participant Score	Participant Rating ¹	Quality Domain	Eligible Procedures	Detail	Count	Percent ²
Jan 2014 - Dec 2016 Overall	(,)			Jan 2014 - Dec 2016 Absence of Mortality		Operative Mortality		
				Jan 2014 - Dec 2016 Absence of Major Complication		Major Complication Pneumonia ARDS Bronchopleural Fistula Pulmonary Embolus Initial Vent Support >48hrs Reintubation/Resp. Failure Tracheostomy Myocardial Infarction Unexpected Return to OR Multiple Complications (more than 1 of the above)		
Jan 2014 - Dec 2016 Absence of Mortality	(,)							
Jan 2014 - Dec 2016 Absence of Major Complication³	(,)							

² Percentages represent the proportion that the specific complication contributed to the total number of patients with a major complication
This information is intended to facilitate and focus process and quality improvement initiatives by providers

¹ Participants must have at least 30 eligible procedures to be rated

* = Participant performance is significantly lower than the STS mean based on 97.5% Bayesian probability

** = Participant performance is not significantly different than the STS mean based on 97.5% Bayesian probability

*** = Participant performance is significantly higher than the STS mean based on 97.5% Bayesian probability

³ Defined as one or more of any of the following: Pneumonia, acute respiratory distress syndrome, bronchopleural fistula, pulmonary embolus, initial ventilator support > 48 hours, reintubation/respiratory failure, tracheostomy, myocardial infarction, unexpected return to OR

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Figure 1: Operative Mortality, Lobectomy for Lung Cancer, Last 3 Years, Jan 2014 - Dec 2016

Eligible Procedures	Unadjusted Rate	Risk-Adjusted Rate (95%CI)	Standardized Incidence Ratio (95%CI)
		% (% , %)	Not Applicable

Distribution of Participant Values ● = Mean STS Participant Risk-Adjusted Rate

Note: See the Lobectomy for Lung Cancer Composite Quality Rating section of this report for more details

Figure 2: Major Complication, Lobectomy for Lung Cancer , Last 3 Years, Jan 2014 - Dec 2016

Eligible Procedures	Unadjusted Rate	Risk-Adjusted Rate (95%CI)	Standardized Incidence Ratio (95%CI)
		% (% , %)	Not Applicable

Distribution of Participant Values ● = Mean STS Participant Risk-Adjusted Rate

Note: See the Lobectomy for Lung Cancer Composite Quality Rating section of this report for more details

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Table 3: Combined Morbidity/Mortality for Pulmonary Resections Details, Last 3 Years, Jan 2014 - Dec 2016

Detail	Incidence	
	Count	Percent
Eligible Procedures	0	0.0%
Combined Morbidity/Mortality ¹	0	0.0%
Operative Mortality ¹	0	0.0%
Morbidity ¹	0	0.0%
Pneumonia ²	0	0.0%
ARDS ²	0	0.0%
Bronchopleural Fistula ²	0	0.0%
Pulmonary Embolus ²	0	0.0%
Initial Vent Support > 48hrs ²	0	0.0%
Reintubation/Respiratory Failure ²	0	0.0%
Tracheostomy ²	0	0.0%
Myocardial Infarction ²	0	0.0%
Unexpected Return to the OR ²	0	0.0%

¹ Percentage represents the proportion of the entire eligible model population

² Percentage represents the proportion contributed to the total number of patients with a morbidity

Figure 3: Combined Morbidity/Mortality for Pulmonary Resections, Last 3 Years, Jan 2014 - Dec 2016

Eligible Procedures	Unadjusted Rate	Risk-Adjusted Rate (95% CI)	Standardized Incidence Ratio (95% CI)
		% (% , %)	(,)

Distribution of Participant Values
● = STS Standardized Incidence Ratio

Note: Refer to the Report Overview for details on pulmonary resections risk-adjustment methodology

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Figure 4: Operative Mortality for Pulmonary Resections Details, Last 3 Years, Jan 2014 - Dec 2016

Eligible Procedures	Unadjusted Rate	Risk-Adjusted Rate (95%CI)	Standardized Incidence Ratio (95%CI)
		% (% , %)	(,)

Distribution of Participant Values ● = STS Standardized Incidence Ratio

Note: Refer to the Report Overview for details on pulmonary resections risk-adjustment methodology

Figure 5: Morbidity for Pulmonary Resections, Last 3 Years, Jan 2014 - Dec 2016

Eligible Procedures	Unadjusted Rate	Risk-Adjusted Rate (95%CI)	Standardized Incidence Ratio (95%CI)
		% (% , %)	(,)

Distribution of Participant Values ● = STS Standardized Incidence Ratio

Note: Refer to the Report Overview for details on pulmonary resections risk-adjustment methodology

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Table 4: Combined Morbidity/Mortality for Esophagectomy Details, Last 3 Years, Jan 2014 - Dec 2016

Detail	Incidence	
	Count	Percent
Eligible Procedures	0	0.0%
Combined Morbidity/Operative Mortality ¹	0	0.0%
Unexpected Return to OR ²	0	0.0%
Anastomotic Leak Req. Medical Rx only ²	0	0.0%
Reintubation/Respiratory Failure ²	0	0.0%
Initial Vent Support > 48hrs ²	0	0.0%
Pneumonia ²	0	0.0%
New Renal Failure per RIFLE criteria ²	0	0.0%
Recurrent laryngeal nerve paresis ²	0	0.0%
Operative Mortality ²	0	0.0%

¹ Percentage represents the proportion of the entire eligible model population

² Percentage represents the proportion contributed to the total number of patients with a morbidity/mortality

Figure 6: Combined Morbidity/Mortality for Esophagectomy, Last 3 Years, Jan 2014 - Dec 2016

Eligible Procedures	Unadjusted Rate	Risk-Adjusted Rate (95% CI)	Standardized Incidence Ratio (95% CI)
		% (% , %)	(,)

Distribution of Participant Values
● = STS Standardized Incidence Ratio

Note: Refer to the Report Overview for details on combined morbidity/mortality for esophagectomy risk-adjustment methodology

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Table 5: Number of Operations submitted, discharge mortality, and operative mortality, by year

	Last Year 2016	Participant 99999 Last 3 Years Jan 2014 - Dec 2016	All Years Jan 2002 - Dec 2016	Last Year 2016	STS Last 3 Years Jan 2014 - Dec 2016	All Years Jan 2002 - Dec 2016
Number of Operations						
Discharge Mortality						
Number of Mortalities						
Number Eligible						
Mortality Percent						
Operative Mortality						
Number of Mortalities						
Number Eligible						
Mortality Percent						

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Figure 7: Yearly Esophagectomy Volumes

Figure 8: Yearly Lobectomy Volumes

Figure 9: Yearly Pulmonary Resection Volumes

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Table 6: Primary Procedures Operative Mortality, All Available Records, Jan 2002 - Dec 2016

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
PRIMARY PROCEDURES						
CHEST WALL (v2.07)						
Chest Wall Biopsy						
Rib Resection (single)						
First/Cervical Rib Resection						
Chest Wall Resection						
Chest Wall Reconstruction						
Thoracoplasty						
Pectus Repair						
Sternectomy, complete						
Sternectomy, partial						
Muscle Flap						
Other Chest Wall Repair						
MEDIASTINUM/NECK (v2.07)						
Mediastinal LN Biopsy						
Mediastinoscopy						
Anterior Mediastinotomy						
Extended Cervical Mediastinoscopy						
Mediastinal Lymph Node Dissection						
Mediastinal Lymph Node Sampling						
Biopsy, Mediastinal Mass						
Resection, Mediastinal Mass						
Thymectomy						
Sympathectomy						
Thoracic duct ligation						
Other Mediastinal/Neck procedure						
TRACHEOBRONCHIAL (v2.07)						
Flexible Bronchoscopy						
Rigid Bronchoscopy						
Removal of Foreign Body (Tracheobronchial)						
Endobronchial ablation, Laser / PDT						
Endobronchial Ablation, Mechanical						
Tracheal/Bronchial Stent						

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Table 6: Primary Procedures Operative Mortality, All Available Records, Jan 2002 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
TRACHEOBRONCHIAL (v2.07) - continued						
Tracheostomy						
Tracheal Repair						
Tracheal Stricture Resection						
Tracheal Tumor Resection						
Carinal Resection (no lung resection)						
Bronchotomy						
Bronchial Repair						
Bronchoplasty						
Sleeve Bronchial Resection						
TE Fistula Repair						
Other Tracheobronchial procedure						
PULMONARY (v2.07)						
Wedge Resection, single						
Wedge Resection, multiple						
Segmentectomy						
Lobectomy						
Sleeve Lobectomy						
Bilobectomy						
Pneumonectomy, standard						
Pneumonectomy, Carinal						
Completion pneumonectomy						
Extrapleural pneumonectomy						
Pneumonectomy, intrapericardial						
Lung Volume Reduction						
Bullectomy / repair						
Hydatid Cyst Resection						
Single Lung Transplant						
Double Lung Transplant						
Lung Donor Harvest						
Other Lung procedure						
ESOPHAGOGASTRIC (v2.07)						
Esophagoscopy, flexible						
Esophagoscopy, rigid						

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Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
ESOPHAGOGASTRIC (v2.07) - continued						
Removal of Foreign Body (Esophagogastric)						
Dilation of Esophagus						
Esophageal Tumor Ablation, Laser / PDT						
Stent Placement						
Cervical esophagostomy						
Anterior Thoracic Esophagostomy						
Zenker's Diverticulum Repair						
Myotomy, cricopharyngeal						
Myotomy, esophageal (long)						
Myotomy, cardia (short)						
Resection, intrathoracic diverticulum						
Resection, esophagus (esophagectomy)						
Resection, esophageal wall lesion						
Repair, perforation of esophagus - Iatrogenic						
Repair, perforation of esophagus - Malignant						
Repair, perforation of esophagus - Other						
Fundoplication, circumferentia						
Fundoplication, partial						
Gastroplasty						
Pyloroplasty						
Pyloromyotomy						
Gastrectomy						
Gastrostomy						
Jejunostomy						
Conduit, gastric						
Conduit, colon						
Conduit, jejunum						
Conduit, other						
Anastomosis, neck						
Anastomosis, Chest						
Other Esophageal procedure						
Other GI procedure						
CARDIAC/PERICARDIUM/GREAT VESSELS (v2.07)						
Pericardial Window						

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Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
CARDIAC/PERICARDIUM/GREAT VESSELS (v2.07) - continued						
Pericardiectomy						
Repair Cardiac Laceration						
Other Pericardial Procedure						
Repair / Reconstruction, thoracic aorta						
Repair / Reconstruction, abd aorta						
Repair / Reconstruction, SVC						
Repair / Reconstruction, IVC						
Repair / Reconstruction, pulmonary artery						
Repair / Reconstruction, pulmonary vein(s)						
Repair / Reconstruction, left atrium						
Repair / Reconstruction, Subclavian Artery						
Cardiopulmonary Bypass						
Other Cardiac procedure						
DIAPHRAGM (v2.07)						
Plication of Diaphragm						
Diaphragmatic Hernia Repair, acute						
Diaphragmatic Hernia Repair, chronic						
Resection of Diaphragm						
Reconstruction of Diaphragm						
Other Diaphragm procedure						
PLEURA (v2.07)						
Pleural Drainage Procedure - Open						
Pleural Drainage Procedure - Closed						
Pleural Biopsy						
Pleurodesis						
Pleurectomy						
Decortication						
Clagett Procedure						
Other Pleural procedure						
AIR LEAK CONTROL MEASURES (v2.07)						
Fibrin Glue						
Pericardial Strips						

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Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
AIR LEAK CONTROL MEASURES (v2.07) - continued Lung Sealant Pleural Tent Other Air Leak Control Measures						
TRACHEA, BRONCHI AND LARYNX (v2.081, v2.2 and v2.3) Tracheostomy, planned (31600) v2.2, v2.3 Rigid Stent Removal v2.3 Tracheostomy replacement (tube change) prior to est. of fistula tract (31502) v2.3 Unlisted procedure, trachea, bronchi (31899) v2.081 Tracheostomy revision simple, without flap (31613) v2.3 Bronchogenic cyst removal v2.3 Tracheal stenosis excision and anastomosis; cervicothoracic (31781) Bronchial laceration suture v2.3 Tracheal tumor or carcinoma excision; cervical (31785) Bronchial sleeve resection v2.3 Tracheal tumor or carcinoma excision; thoracic (31786) Bronchoplasty, graft repair (31770) v2.3 Tracheal wound or injury suture repair; cervical (31800) Bronchoplasty; excision stenosis and anastomosis (31775) Tracheal wound or injury suture repair; intrathoracic (31805) Bronchopleural fistula closure (32906) v2.3 Tracheoplasty; cervical (31750) Carinal reconstruction (31766) Tracheoplasty; intrathoracic (31760) Laryngectomy, partial (31370) v2.2, v2.3 Tracheostomy revision complex, with flap (31614) v2.3 Tracheal stenosis excision and anastomosis; cervical (31780) Tracheostomy mediastinal v2.3						
BRONCHOSCOPY (v2.081, v2.2, v2.3) Bronchoscopy, diagnostic, with or without cell washing (31622) Bronchoscopy, each additional major bronchus stented (31637) Bronchoscopy, navigational (31627) v2.2, v2.3 Bronchoscopy, with bronchial alveolar lavage (BAL) (31624)						

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Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
BRONCHOSCOPY (v2.081, v2.2, v2.3) - continued						
Bronchoscopy, with bronchial or endobronchial biopsy(s), single or multiple sites (31625)						
Bronchoscopy, with brushing or protected brushings (31623)						
Bronchoscopy, with destruction of tumor or relief of stenosis by any method other than excision (e.g., laser therapy) (31641)						
Bronchoscopy, with excision of tumor (31640)						
Bronchoscopy, with placement of bronchial stent(s) (includes tracheal/bronchial dilation as required), initial bronchus (31636)						
Bronchoscopy, with placement of catheter(s) for intracavitary radioelement application (31643)						
Bronchoscopy, with placement of Fiducial markers (31626) v2.2, v2.3						
Bronchoscopy, with placement of tracheal stent(s) (includes tracheal/bronchial dilation as required) (31631)						
Bronchoscopy, with removal of foreign body (31635)						
Bronchoscopy, with revision of tracheal or bronchial stent inserted at previous session (31638)						
Bronchoscopy, with therapeutic aspiration of tracheobronchial tree, initial (drainage of lung abscess) (31645)						
Bronchoscopy, with therapeutic aspiration of tracheobronchial tree, subsequent (31646)						
Bronchoscopy, with tracheal/bronchial dilation or closed reduction of fracture (31630)						
Bronchoscopy, with transbronchial lung biopsy(s), each additional lobe (31632)						
Bronchoscopy, with transbronchial lung biopsy(s), single lobe (31628)						
Bronchoscopy, with transbronchial needle aspiration biopsy(s) (31629)						
Bronchoscopy, with transbronchial needle aspiration biopsy(s), each additional lobe (31633)						
Endobronchial ultrasound (EBUS) during bronchoscopy diagnostic or therapeutic intervention(s) (31620)						
Tracheobronchoscopy through established tracheostomy incision (31615)						
PLEURAL SPACE AND LUNG (v2.081, v2.2 and v2.3)						
Thoracoscopy, diagnostic lungs and pleural space, without biopsy (32601)						
Thoracoscopy, surgical; with pleurodesis (e.g., mechanical or chemical) (32650)						

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Table 6: Primary Procedures Operative Mortality, All Available Records, Jan 2002 - Dec 2016 - continued

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		# / Eligible	%		# / Eligible	%
PLEURAL SPACE AND LUNG (v2.081, v2.2 and v2.3) - continued Thoracoscopy, surgical; with removal of intrapleural foreign body or fibrin deposit (32653) Thoracoscopy, diagnostic; with biopsy(ies) of lung infiltrate(s) (eg wedge), unilateral (32607) v2.2, v2.3 Thoracoscopy, diagnostic; with biopsy(ies) of lung nodule(s) or mass(es) (eg incisional), unilateral (32608) v2.2, v2.3 Thoracoscopy, diagnostic; with biopsy(ies) of pleura (32609) v2.2, v2.3 Thoracostomy; with rib resection for empyema (32035) Thoracostomy; with open flap drainage for empyema (32036) Thoracotomy with biopsy(ies) lung infiltrate(s) (eg wedge), unilateral (32096) Thoracotomy with biopsy(ies) lung nodule(s) or masses (eg incisional), unilateral (32097) Thoracotomy with biopsy(ies) of pleura (32098) Thoracotomy with cardiac massage (32160) Pleural scarification for repeat pneumothorax (32215) Insertion indwelling tunneled pleural catheter (32550) Repair lung hernia through chest wall (32800) Closure of chest wall following open flap drainage for empyema (Clagett type procedure) (32810) Total lung lavage (for alveolar proteinosis) (32997) Radio-frequency ablation (RFA) lung tumor (32998) Unlisted procedure, lung (32999) Thoracoscopy, surgical; with partial pulmonary decortication (32651) Thoracoscopy, surgical; with total pulmonary decortication (32652) Thoracoscopy, surgical; with control of traumatic hemorrhage (32654) Thoracoscopy, surgical; with excision-plication of bullae, including any pleural procedure (32655) Thoracoscopy, surgical; with parietal pleurectomy (32656) Thoracoscopy, surgical; with lobectomy (32663) Thoracoscopy with therapeutic wedge resection (eg mass or nodule, initial, unilateral (32666) v2.2, v2.3 Thoracoscopy with therapeutic wedge resection(eg mass or nodule) each additional resection, ipsilateral (32667) v2.2, v2.3 Thoracoscopy with diagnostic wedge resection followed by anatomic lung resection (32668) v2.2, v2.3						

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Table 6: Primary Procedures Operative Mortality, All Available Records, Jan 2002 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
PLEURAL SPACE AND LUNG - continued						
Thoracoscopy with removal of a single lung segment (segmentectomy) (32669) v2.2, v2.3						
Thoracoscopy with removal of two lobes (bilobectomy) (32670) v2.2, v2.3						
Thoracoscopy with removal of lung, pneumonectomy (32671) v2.2, v2.3						
Thoracoscopy with resection-plication for emphysematous lung (bullous or non-bullous) for lung volume reduction- LVRS, unilateral including any pleural procedure (32672) v2.2, v2.3						
Thoracotomy with therapeutic wedge resection (eg mass nodule) initial (32505) v2.2, v2.3						
Thoracotomy with therapeutic wedge resection (eg mass nodule) each additional resection, ipsilateral (+32506) v2.2, v2.3						
Thoracotomy with diagnostic wedge resection followed by anatomic lung resection (+32507) v2.2, v2.3						
Thoracotomy, limited, for biopsy of lung or pleura (i.e.; open lung biopsy) (32095) v2.081						
Thoracotomy, with exploration (32100)						
Thoracotomy, major; with control of traumatic hemorrhage and/or repair of lung tear (32110)						
Thoracotomy, major; for postoperative complications (32120)						
Thoracotomy, major; with cyst(s) removal, with or without a pleural procedure (32140)						
Thoracotomy, major; with excision-plication of bullae, with or without any pleural procedure (32141)						
Thoracotomy, major; with removal of intrapleural foreign body or hematoma (32150)						
Thoracotomy with open intrapleural pneumolysis (32124) v2.3						
Decortication, pulmonary, total (32220)						
Decortication, pulmonary, partial (32225)						
Pleurectomy, parietal (32310)						
Decortication and parietal pleurectomy (32320)						
Thoracotomy, with biopsy of pleura (32098) (v2.081, v2.2)						
Removal of lung, total pneumonectomy; (32440)						
Removal of lung, sleeve (carinal) pneumonectomy (32442)						
Removal of lung, total pneumonectomy; extrapleural (32445)						
Removal of lung, single lobe (lobectomy) (32480)						

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		# / Eligible	%		# / Eligible	%
<p>PLEURAL SPACE AND LUNG - continued</p> <p>Removal of lung, two lobes (bilobectomy) (32482) Removal of lung, single segment (segmentectomy) (32484) Removal of lung, sleeve lobectomy (32486) Removal of lung, completion pneumonectomy (32488) Removal of lung, excision-plication of emphysematous lung(s) for lung volume reduction (LVRS) (32491) Resection and repair of portion of bronchus (bronchoplasty) when performed at time of lobectomy or segmentectomy (32501) Resection of apical lung tumor (e.g., Pancoast tumor), including chest wall resection, without chest wall reconstruction(s) (32503) Resection of apical lung tumor (e.g., Pancoast tumor), including chest wall resection, with chest wall reconstruction (32504) Removal of lung, wedge resection, single or multiple(32500) v2.081 Extrapleural enucleation of empyema(empyemectomy) (32540) v2.081 Thoracoscopy, diagnostic lungs and pleural space, with biopsy (32602) v2.081 Thoracoscopy, diagnostic pericardial sac, without biopsy (32603) v2.081 Thoracoscopy, surgical; with wedge resection of lung, single or multiple (32657) v2.081</p> <p>LUNG OTHER (v2.081, v2.2 and v2.3)</p> <p>Open closure of major bronchial fistula (32815) Thoracoplasty with closure of bronchopleural fistula (32906) Single lung transplant (32851) Single lung transplant with CPB (32852) Double lung transplant (32853) Double lung transplant with CPB (32854)</p> <p>MEDIASTINUM AND DIAPHRAGM (v2.081, v2.2 and v2.3)</p> <p>Thoracoscopy, diagnostic; mediastinal space, with biopsy (32606) Mediastinotomy with exploration or biopsy; cervical approach (39000) Mediastinotomy with exploration or biopsy; transthoracic approach (39010) Mediastinoscopy, with or without biopsy (39400) Unlisted procedure, mediastinum (39499) Unlisted procedure, diaphragm (39599)</p>						

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Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
<p>MEDIASTINUM AND DIAPHRAGM (v2.081, v2.2 and v2.3) - continued Thoracoscopy, surgical; with excision of mediastinal cyst, tumor, or mass (32662) Thoracoscopy, diagnostic mediastinal space, without biopsy (32605) v2.081 Thoracoscopy with mediastinal and regional lymphadenectomy (+32674) v2.2, v2.3 Thoracic lymphadenectomy, regional, including mediastinal and peritracheal nodes (38746) Mediastinal cyst, excision, open, Transthoracic approach (39200) Mediastinal tumor, excision, open, Transthoracic approach (39220) Thoracoscopy with resection of thymus, unilateral or bilateral (32673) v2.2, v2.3 Thymectomy, transcervical approach (60520) Thymectomy, transthoracic approach (60521) Thymectomy, transthoracic approach, with radical mediastinal dissection (60522) VATS thymectomy (605XX) v2.081 Diaphragm, laceration repair, any approach (39501) Repair of paraesophageal hiatus hernia, transabdominal with or without fundoplasty (39502) v2.081 Diaphragmatic hernia repair (other than neonatal), traumatic; acute (39540) Diaphragmatic hernia repair (other than neonatal), traumatic; chronic (39541) Diaphragm Imbrication (i.e., plication) (39545) Diaphragm; resection with simple repair (e.g., primary suture) (39560) Diaphragm; resection with complex repair (e.g., prosthetic material, local muscle flap) (39561)</p> <p>ESOPHAGOSCOPY (v2.081, v2.2, v2.3) Esophagoscopy (43200) Esophagoscopy with biopsy (43202) Esophagoscopy with removal of foreign body (43215) Esophagoscopy with insertion of stent (43219) Esophagoscopy with balloon dilation (43220) Esophagoscopy with insertion of guide wire followed by dilation over guide wire (43226) Esophagoscopy with ablation of tumor (43228)</p>						

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Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
ESOPHAGOSCOPY (v2.081, v2.2, v2.3) - continued						
Esophagoscopy with endoscopic ultrasound examination (EUS) (43231)						
Esophagoscopy with transendoscopic ultrasound-guided fine needle aspiration (43232)						
Upper gastrointestinal endoscopy, diagnostic (43235)						
Upper gastrointestinal endoscopy with endoscopic ultrasound examination limited to the esophagus (43237)						
Upper gastrointestinal endoscopy with transendoscopic ultrasound-guided FNA (43238)						
Upper gastrointestinal endoscopy with biopsy (43239)						
Upper gastrointestinal endoscopy with dilation of gastric outlet for obstruction (43245)						
Upper gastrointestinal endoscopy with directed placement of percutaneous gastrostomy tube (43246)						
Upper gastrointestinal endoscopy with removal of foreign body (43247)						
Upper gastrointestinal endoscopy with insertion of guide wire followed by dilation of esophagus (43248)						
Upper gastrointestinal endoscopy with balloon dilation of esophagus (43249)						
Upper gastrointestinal endoscopy with transendoscopic stent placement (43256)						
Upper gastrointestinal endoscopy with ablation of tumor (43258)						
ESOPHAGUS RESECTION (v2.081, v2.2 and v2.3)						
Transhiatal-Total esophagectomy, without thoracotomy, with cervical esophagogastrostomy (43107)						
Three hole-Total esophagectomy with thoracotomy; with cervical esophagogastrostomy (43112)						
Ivor Lewis-Partial esophagectomy, distal two-thirds, with thoracotomy and separate abdominal incision (43117)						
Thoracoabdominal-Partial esophagectomy, thoracoabdominal approach (43122)						
Minimally invasive three hole esophagectomy v2.2, v2.3						
Minimally invasive esophagectomy, Ivor Lewis approach						
Minimally invasive esophagectomy, Abdominal and neck approach						
Total esophagectomy without thoracotomy; with colon interposition or small intestine reconstruction (43108)						

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Table 6: Primary Procedures Operative Mortality, All Available Records, Jan 2002 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
<p>ESOPHAGUS RESECTION (v2.081, v2.2 and v2.3) - continued Total esophagectomy with thoracotomy; with colon interposition or small intestine reconstruction (43113) Partial esophagectomy, cervical, with free intestinal graft, including microvascular anastomosis (43116) Partial esophagectomy, with thoracotomy and separate abdominal incision with colon interposition or small intestine (43118) Partial esophagectomy, distal two-thirds, with thoracotomy only (43121) Partial esophagectomy, thoracoabdominal with colon interposition or small intestine (43123) Total or partial esophagectomy, without reconstruction with cervical esophagostomy (43124) Conduit revision s/p esophagectomy v2.3</p> <p>ESOPHAGUS OTHER PROCEDURES (v2.081, v2.2 and v2.3) Cricopharyngeal myotomy (43030) Diverticulectomy of hypopharynx or esophagus, with or without myotomy; cervical approach (43130) Esophagostomy, fistulization of esophagus, external; cervical approach (43352) Closure of esophagostomy or fistula; cervical approach (43420) Excision esophageal lesion with primary repair, cervical approach (43100) v2.2, v2.3 Trans oral fundoplication v2.3 Unlisted laparoscopy, esophagus (43289) v2.2, v2.3 Unlisted procedure, esophagus (43499) Per oral endoscopic myotomy (POEM) v2.3 Laparoscopy, surgical with repair of paraesophageal hernia (fundoplasty) without mesh (43281) v2.2, v2.3 Laparoscopy, surgical with repair of paraesophageal hernia (fundoplasty) with mesh (43282) v2.2, v2.3 Laparoscopy, surgical, esophageal lengthening procedure (Collis) (43283) Secondary Procedure code v2.2, v2.3 Laparoscopy, surgical, esophagogastric fundoplasty (e.g., Nissen, Toupet procedures) (43280)</p>						

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Table 6: Primary Procedures Operative Mortality, All Available Records, Jan 2002 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
ESOPHAGUS OTHER PROCEDURES (v2.081, v2.2 and v2.3) - continued						
Laparoscopic esophageal myotomy (Heller Myotomy, with or without fundoplication) (43279) v2.2, v2.3						
Thoracoscopy, surgical; with esophagomyotomy (Heller type) (32665) - v2.081						
Nissen fundoplasty- laparotomy (includes partial fundoplication/ wrap) (43327) v2.2, v2.3						
Transthoracic Fundoplication- open thoracotomy (includes Belsey/ Nissen) (43328) v2.2, v2.3						
Repair, paraesophageal hiatal hernia via laparotomy without mesh (43332) v2.2, v2.3						
Repair, paraesophageal hiatal hernia via laparotomy with mesh (43333) v2.2, v2.3						
Repair, paraesophageal hiatal hernia via thoracotomy without mesh (43334) v2.2, v2.3						
Repair, paraesophageal hiatal hernia via thoracotomy with mesh (43335) v2.2, v2.3						
Repair, paraesophageal hiatal hernia via thoracoabdominal approach without mesh (43336) v2.2, v2.3						
Repair, paraesophageal hiatal hernia via thoracoabdominal approach with mesh (43337) v2.2, v2.3						
Esophageal lengthening procedure - open (Collis) Secondary Procedure code (43338) v2.2, v2.3						
Diverticulectomy of esophagus, with or without myotomy; thoracic approach (43135)						
Excision Esophageal lesion with primary repair, thoracic approach (eg: leiomyoma) (43101) v2.2, v2.3						
Esophagoplasty with repair of TEF, cervical approach (43305) v2.2, v2.3						
Esophagoplasty with repair TEF, thoracic approach (43312) v2.2, v2.3						
Esophagomyotomy (Heller type); thoracic approach (43331) v2.2, v2.3						
Esophagogastric fundoplasty (e.g., Nissen, Belsey IV,Hill procedures) (43324) v2.081						
Esophagogastric fundoplasty; with gastroplasty (e.g.,Collis) (43326) v2.081						
Esophagomyotomy (Heller type); thoracic approach (43331) v2.081						
Gastrointestinal reconstruction for previous esophagectomy with stomach (43360)						
Gastrointestinal reconstruction for previous esophagectomy with colon interposition or small intestine (43361)						

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Table 6: Primary Procedures Operative Mortality, All Available Records, Jan 2002 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
<p>ESOPHAGUS OTHER PROCEDURES (v2.081, v2.2 and v2.3) - continued Ligation or stapling at gastroesophageal junction for esophageal perforation (43405) Suture of esophageal wound or injury; cervical approach (43410) Suture of esophageal wound or injury; transthoracic or transabdominal approach (43415) Free jejunum transfer with microvascular anastomosis (43496) Total gastrectomy with esophagoenterostomy (43620) Total gastrectomy with Roux-en-Y reconstruction (43621)</p> <p>CHEST WALL AND NECK (v2.081, v2.2 and v2.3) Excision tumor, soft tissue of neck or thorax; subcutaneous (21555) Excision tumor, soft tissue of neck or thorax; deep, subfascial, intramuscular (21556) Excision of rib, partial (21600) Excision first and/or cervical rib (21615) Excision first and/or cervical rib; with sympathectomy (21616) Division of scalenus anticus; without resection of cervical rib (21700) Division of scalenus anticus; with resection of cervical rib (21705) Open treatment of sternum fracture with or without skeletal fixation (21825) Hyoid myotomy and suspension (21685) secondary procedure code Removal of sternal wire(s) v2.3 Unlisted procedure, neck or thorax (21899) Major reconstruction, chest wall (posttraumatic) (32820) Muscle flap, neck (15732) Muscle flap; trunk (i.e., intercostal, pectoralis or serratus muscle) (15734) Excision of chest wall tumor including ribs (19260) Excision of chest wall tumor involving ribs, with reconstruction (19271) Radical resection of tumor (e.g., malignant neoplasm), soft tissue of neck or thorax (21557) Radical resection of sternum (21630) Radical resection of sternum; with mediastinal lymphadenectomy (21632) Reconstructive repair of pectus excavatum or carinatum; open (21740) Reconstructive repair of pectus, minimally invasive approach (Nuss procedure), without thoracoscopy (21742)</p>						

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Table 6: Primary Procedures Operative Mortality, All Available Records, Jan 2002 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
<p>CHEST WALL AND NECK (v2.081, v2,2 and v2.3) - continued Reconstructive repair of pectus, minimally invasive approach (Nuss procedure), with thoracoscopy (21743)</p> <p>MISCELLANEOUS (v2.081, v2,2 and v2.3) Thoracoscopy, diagnostic pericardial sac, with biopsy (32604) Thoracoscopy, surgical; with removal of clot or foreign body from pericardial sac (32658) Thoracoscopy, surgical; with creation of pericardial window or partial resection of pericardial sac for drainage (32659) Tube pericardiostomy (33015) Pericardial window (33025) Thoracoscopy, surgical; with thoracic sympathectomy (32664) Removal substernal thyroid, cervical approach (60271) Application of wound vac (97605, 97606) v2.2, v2.3 Stereotactic radiosurgery (SRS) and stereotactic body radiotherapy (SBRT) surgeon participation (32701) v2.2, v2.3 Other Minor Procedure v2.2, v2.3 Thoracoscopy, surgical; with total pericardiectomy (32660) Thoracoscopy, surgical; with excision of pericardial cyst, tumor, or mass (32661) Ligation thoracic duct (38381) Intraoperative jejunostomy (44015) Omental flap (49904) Transthoracic thyroidectomy (60270) SVC resection and reconstruction (34502) Other</p> <p>MISSING DATA [Missing data]</p>						

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Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
PRIMARY PROCEDURES						
TRACHEA, BRONCHI AND LARYNX						
Tracheostomy, planned (31600)						
Rigid Stent Removal v2.3						
Tracheostomy replacement (tube change) prior to est. of fistula tract (31502) v2.3						
Unlisted procedure, trachea, bronchi (31899) v2.081						
Tracheostomy revision simple, without flap (31613) v2.3						
Bronchogenic cyst removal v2.3						
Tracheal stenosis excision and anastomosis; cervicothoracic (31781)						
Bronchial laceration suture v2.3						
Tracheal tumor or carcinoma excision; cervical (31785)						
Bronchial sleeve resection v2.3						
Tracheal tumor or carcinoma excision; thoracic (31786)						
Bronchoplasty, graft repair (31770) v2.3						
Tracheal wound or injury suture repair; cervical (31800)						
Bronchoplasty; excision stenosis and anastomosis (31775)						
Tracheal wound or injury suture repair; intrathoracic (31805)						
Bronchopleural fistula closure (32906) v2.3						
Tracheoplasty; cervical (31750)						
Carinal reconstruction (31766)						
Tracheoplasty; intrathoracic (31760)						
Laryngectomy, partial (31370)						
Tracheostomy revision complex, with flap (31614) v2.3						
Tracheal stenosis excision and anastomosis; cervical (31780)						
Tracheostomy mediastinal v2.3						
BRONCHOSCOPY						
Bronchoscopy, diagnostic, with or without cell washing (31622)						
Bronchoscopy, each additional major bronchus stented (31637)						
Bronchoscopy, navigational (31627)						
Bronchoscopy, with bronchial alveolar lavage (BAL) (31624)						
Bronchoscopy, with bronchial or endobronchial biopsy(s), single or multiple sites (31625)						
Bronchoscopy, with brushing or protected brushings (31623)						

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Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
<p>BRONCHOSCOPY - continued</p> <p>Bronchoscopy, with destruction of tumor or relief of stenosis by any method other than excision (e.g., laser therapy) (31641)</p> <p>Bronchoscopy, with excision of tumor (31640)</p> <p>Bronchoscopy, with placement of bronchial stent(s) (includes tracheal/bronchial dilation as required), initial bronchus (31636)</p> <p>Bronchoscopy, with placement of catheter(s) for intracavitary radioelement application (31643)</p> <p>Bronchoscopy, with placement of Fiducial markers (31626)</p> <p>Bronchoscopy, with placement of tracheal stent(s) (includes tracheal/bronchial dilation as required) (31631)</p> <p>Bronchoscopy, with removal of foreign body (31635)</p> <p>Bronchoscopy, with revision of tracheal or bronchial stent inserted at previous session (31638)</p> <p>Bronchoscopy, with therapeutic aspiration of tracheobronchial tree, initial (drainage of lung abscess) (31645)</p> <p>Bronchoscopy, with therapeutic aspiration of tracheobronchial tree, subsequent (31646)</p> <p>Bronchoscopy, with tracheal/bronchial dilation or closed reduction of fracture (31630)</p> <p>Bronchoscopy, with transbronchial lung biopsy(s), each additional lobe (31632)</p> <p>Bronchoscopy, with transbronchial lung biopsy(s), single lobe (31628)</p> <p>Bronchoscopy, with transbronchial needle aspiration biopsy(s) (31629)</p> <p>Bronchoscopy, with transbronchial needle aspiration biopsy(s), each additional lobe (31633)</p> <p>Endobronchial ultrasound (EBUS) during bronchoscopy diagnostic or therapeutic intervention(s) (31620)</p> <p>Tracheobronchoscopy through established tracheostomy incision (31615)</p> <p>PLEURAL SPACE AND LUNG</p> <p>Thoracoscopy, diagnostic lungs and pleural space, without biopsy (32601)</p> <p>Thoracoscopy, surgical; with pleurodesis (e.g., mechanical or chemical) (32650)</p> <p>Thoracoscopy, surgical; with removal of intrapleural foreign body or fibrin deposit (32653)</p>						

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Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
PLEURAL SPACE AND LUNG - continued						
Thoracoscopy, diagnostic: with biopsy(ies) of lung infiltrate(s) (eg wedge), unilateral (32607)						
Thoracoscopy, diagnostic: with biopsy(ies) of lung nodule(s) or mass(es) (eg incisional), unilateral (32608)						
Thoracoscopy, diagnostic: with biopsy(ies) of pleura (32609)						
Thoracostomy; with rib resection for empyema (32035)						
Thoracostomy; with open flap drainage for empyema (32036)						
Thoracotomy with biopsy(ies) lung infiltrate(s) (eg wedge), unilateral (32096)						
Thoracotomy with biopsy(ies) lung nodule(s) or masses (eg incisional), unilateral (32097)						
Thoracotomy with biopsy(ies) of pleura (32098)						
Thoracotomy with cardiac massage (32160)						
Pleural scarification for repeat pneumothorax (32215)						
Insertion indwelling tunneled pleural catheter (32550)						
Repair lung hernia through chest wall (32800)						
Closure of chest wall following open flap drainage for empyema (Clagett type procedure) (32810)						
Total lung lavage (for alveolar proteinosis) (32997)						
Radio-frequency ablation (RFA) lung tumor (32998)						
Unlisted procedure, lung (32999)						
Thoracoscopy, surgical; with partial pulmonary decortication (32651)						
Thoracoscopy, surgical; with total pulmonary decortication (32652)						
Thoracoscopy, surgical; with control of traumatic hemorrhage (32654)						
Thoracoscopy, surgical; with excision-plication of bullae, including any pleural procedure (32655)						
Thoracoscopy, surgical; with parietal pleurectomy (32656)						
Thoracoscopy, surgical; with lobectomy (32663)						
Thoracoscopy with therapeutic wedge resection (eg mass or nodule, initial, unilateral) (32666)						
Thoracoscopy with therapeutic wedge resection(eg mass or nodule) each additional resection, ipsilateral (32667)						
Thoracoscopy with diagnostic wedge resection followed by anatomic lung resection (32668)						
Thoracoscopy with removal of a single lung segment (segmentectomy) (32669)						
Thoracoscopy with removal of two lobes (bilobectomy) (32670)						

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Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
PLEURAL SPACE AND LUNG - continued						
Thoracoscopy with removal of lung, pneumonectomy (32671)						
Thoracoscopy with resection-plication for emphysematous lung (bullous or non-bullous) for lung volume reduction- LVRS, unilateral including any pleural procedure (32672)						
Thoracotomy with therapeutic wedge resection (eg mass nodule) initial (32505)						
Thoracotomy with therapeutic wedge resection (eg mass nodule) each additional resection, ipsilateral (+32506)						
Thoracotomy with diagnostic wedge resection followed by anatomic lung resection (+32507)						
Thoracotomy, with exploration (32100)						
Thoracotomy, major; with control of traumatic hemorrhage and/or repair of lung tear (32110)						
Thoracotomy, major; for postoperative complications (32120)						
Thoracotomy, major; with cyst(s) removal, with or without a pleural procedure (32140)						
Thoracotomy, major; with excision-plication of bullae, with or without any pleural procedure (32141)						
Thoracotomy, major; with removal of intrapleural foreign body or hematoma (32150)						
Thoracotomy with open intrapleural pneumolysis (32124) v2.3						
Decortication, pulmonary, total (32220)						
Decortication, pulmonary, partial (32225)						
Pleurectomy, parietal (32310)						
Decortication and parietal pleurectomy (32320)						
Thoracotomy, with biopsy of pleura (32098) (v2.081, v2.2)						
Removal of lung, total pneumonectomy; (32440)						
Removal of lung, sleeve (carinal) pneumonectomy (32442)						
Removal of lung, total pneumonectomy; extrapleural (32445)						
Removal of lung, single lobe (lobectomy) (32480)						
Removal of lung, two lobes (bilobectomy) (32482)						
Removal of lung, single segment (segmentectomy) (32484)						
Removal of lung, sleeve lobectomy (32486)						
Removal of lung, completion pneumonectomy (32488)						

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Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Participant Operative Mortality		STS Operative Mortality	
	Incidence #	# / Eligible %	Incidence #	# / Eligible %
<p>PLEURAL SPACE AND LUNG - continued</p> <p>Removal of lung, excision-plication of emphysematous lung(s) for lung volume reduction (LVRS) (32491)</p> <p>Resection and repair of portion of bronchus (bronchoplasty) when performed at time of lobectomy or segmentectomy (32501)</p> <p>Resection of apical lung tumor (e.g., Pancoast tumor), including chest wall resection, without chest wall reconstruction(s) (32503)</p> <p>Resection of apical lung tumor (e.g., Pancoast tumor), including chest wall resection, with chest wall reconstruction (32504)</p> <p>LUNG OTHER</p> <p>Open closure of major bronchial fistula (32815)</p> <p>Thoracoplasty with closure of bronchopleural fistula (32906)</p> <p>Single lung transplant (32851)</p> <p>Single lung transplant with CPB (32852)</p> <p>Double lung transplant (32853)</p> <p>Double lung transplant with CPB (32854)</p> <p>MEDIASTINUM AND DIAPHRAGM</p> <p>Thoracoscopy, diagnostic; mediastinal space, with biopsy (32606)</p> <p>Mediastinotomy with exploration or biopsy; cervical approach (39000)</p> <p>Mediastinotomy with exploration or biopsy; transthoracic approach (39010)</p> <p>Mediastinoscopy, with or without biopsy (39400)</p> <p>Unlisted procedure, mediastinum (39499)</p> <p>Unlisted procedure, diaphragm (39599)</p> <p>Thoracoscopy, surgical; with excision of mediastinal cyst, tumor, or mass (32662)</p> <p>Thoracoscopy with mediastinal and regional lymphadenectomy (+32674)</p> <p>Thoracic lymphadenectomy, regional, including mediastinal and peritracheal nodes (38746)</p> <p>Mediastinal cyst, excision, open, Transthoracic approach (39200)</p> <p>Mediastinal tumor, excision, open, Transthoracic approach (39220)</p> <p>Thoracoscopy with resection of thymus, unilateral or bilateral (32673)</p> <p>Thymectomy, transcervical approach (60520)</p> <p>Thymectomy, transthoracic approach (60521)</p>				

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Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
MEDIASTINUM AND DIAPHRAGM - continued						
Thymectomy, transthoracic approach, with radical mediastinal dissection (60522)						
Diaphragm, laceration repair, any approach (39501)						
Diaphragmatic hernia repair (other than neonatal), traumatic; acute (39540)						
Diaphragmatic hernia repair (other than neonatal), traumatic; chronic (39541)						
Diaphragm Imbrication (i.e., plication) (39545)						
Diaphragm; resection with simple repair (e.g., primary suture) (39560)						
Diaphragm; resection with complex repair (e.g., prosthetic material, local muscle flap) (39561)						
ESOPHAGOSCOPY						
Esophagoscopy (43200)						
Esophagoscopy with biopsy (43202)						
Esophagoscopy with removal of foreign body (43215)						
Esophagoscopy with insertion of stent (43219)						
Esophagoscopy with balloon dilation (43220)						
Esophagoscopy with insertion of guide wire followed by dilation over guide wire (43226)						
Esophagoscopy with ablation of tumor (43228)						
Esophagoscopy with endoscopic ultrasound examination (EUS) (43231)						
Esophagoscopy with transendoscopic ultrasound-guided fine needle aspiration (43232)						
Upper gastrointestinal endoscopy, diagnostic (43235)						
Upper gastrointestinal endoscopy with endoscopic ultrasound examination limited to the esophagus (43237)						
Upper gastrointestinal endoscopy with transendoscopic ultrasound-guided FNA (43238)						
Upper gastrointestinal endoscopy with biopsy (43239)						
Upper gastrointestinal endoscopy with dilation of gastric outlet for obstruction (43245)						
Upper gastrointestinal endoscopy with directed placement of percutaneous gastrostomy tube (43246)						
Upper gastrointestinal endoscopy with removal of foreign body (43247)						

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Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
ESOPHAGOSCOPY - continued						
Upper gastrointestinal endoscopy with insertion of guide wire followed by dilation of esophagus (43248)						
Upper gastrointestinal endoscopy with balloon dilation of esophagus (43249)						
Upper gastrointestinal endoscopy with transendoscopic stent placement (43256)						
Upper gastrointestinal endoscopy with ablation of tumor (43258)						
ESOPHAGUS RESECTION						
Transhiatal-Total esophagectomy, without thoracotomy, with cervical esophagogastrostomy (43107)						
Three hole-Total esophagectomy with thoracotomy; with cervical esophagogastrostomy (43112)						
Ivor Lewis-Partial esophagectomy, distal two-thirds, with thoracotomy and separate abdominal incision (43117)						
Thoracoabdominal-Partial esophagectomy, thoracoabdominal approach (43122)						
Minimally invasive three hole esophagectomy						
Minimally invasive esophagectomy, Ivor Lewis approach						
Minimally invasive esophagectomy, Abdominal and neck approach						
Total esophagectomy without thoracotomy; with colon interposition or small intestine reconstruction (43108)						
Total esophagectomy with thoracotomy; with colon interposition or small intestine reconstruction (43113)						
Partial esophagectomy, cervical, with free intestinal graft, including microvascular anastomosis (43116)						
Partial esophagectomy, with thoracotomy and separate abdominal incision with colon interposition or small intestine (43118)						
Partial esophagectomy, distal two-thirds, with thoracotomy only (43121)						
Partial esophagectomy, thoracoabdominal with colon interposition or small intestine (43123)						
Total or partial esophagectomy, without reconstruction with cervical esophagostomy (43124)						
Conduit revision s/p esophagectomy v2.3						
Cricopharyngeal myotomy (43030)						

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Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
ESOPHAGUS OTHER PROCEDURES						
Diverticulectomy of hypopharynx or esophagus, with or without myotomy; cervical approach (43130)						
Esophagostomy, fistulization of esophagus, external; cervical approach (43352)						
Closure of esophagostomy or fistula; cervical approach (43420)						
Excision esophageal lesion with primary repair, cervical approach (43100)						
Trans oral fundoplication v2.3						
Unlisted laparoscopy, esophagus (43289)						
Unlisted procedure, esophagus (43499)						
Per oral endoscopic myotomy (POEM) v2.3						
Laparoscopy, surgical with repair of paraesophageal hernia (fundoplasty) without mesh (43281)						
Laparoscopy, surgical with repair of paraesophageal hernia (fundoplasty) with mesh (43282)						
Laparoscopy, surgical, esophageal lengthening procedure (Collis) (43283) Secondary Procedure code						
Laparoscopy, surgical, esophagogastric fundoplasty (e.g., Nissen, Toupet procedures) (43280)						
Laparoscopic esophageal myotomy (Heller Myotomy, with or without fundoplication) (43279)						
Thoracoscopy, surgical; with esophagomyotomy (Heller type) (32665) - v2.081						
Nissen fundoplasty- laparotomy (includes partial fundoplication/ wrap) (43327)						
Transsthoracic Fundoplication- open thoracotomy (includes Belsey/ Nissen) (43328)						
Repair, paraesophageal hiatal hernia via laparotomy without mesh (43332)						
Repair, paraesophageal hiatal hernia via laparotomy with mesh (43333)						
Repair, paraesophageal hiatal hernia via thoracotomy without mesh (43334)						
Repair, paraesophageal hiatal hernia via thoracotomy with mesh (43335)						
Repair, paraesophageal hiatal hernia via thoracoabdominal approach without mesh (43336)						
Repair, paraesophageal hiatal hernia via thoracoabdominal approach with mesh (43337)						
Esophageal lengthening procedure - open (Collis) Secondary Procedure code (43338)						

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Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
ESOPHAGUS OTHER PROCEDURES - continued						
Diverticulectomy of esophagus, with or without myotomy; thoracic approach (43135)						
Excision Esophageal lesion with primary repair, thoracic approach (eg: leiomyoma) (43101)						
Esophagoplasty with repair of TEF, cervical approach (43305)						
Esophagoplasty with repair TEF, thoracic approach (43312)						
Esophagomyotomy (Heller type); thoracic approach (43331) -						
Gastrointestinal reconstruction for previous esophagectomy with stomach (43360)						
Gastrointestinal reconstruction for previous esophagectomy with colon interposition or small intestine (43361)						
Ligation or stapling at gastroesophageal junction for esophageal perforation (43405)						
Suture of esophageal wound or injury; cervical approach (43410)						
Suture of esophageal wound or injury; transthoracic or transabdominal approach (43415)						
Free jejunum transfer with microvascular anastomosis (43496)						
Total gastrectomy with esophagoenterostomy (43620)						
Total gastrectomy with Roux-en-Y reconstruction (43621)						
CHEST WALL AND NECK						
Excision tumor, soft tissue of neck or thorax; subcutaneous (21555)						
Excision tumor, soft tissue of neck or thorax; deep, subfascial, intramuscular (21556)						
Excision of rib, partial (21600)						
Excision first and/or cervical rib (21615)						
Excision first and/or cervical rib; with sympathectomy (21616)						
Division of scalenus anticus; without resection of cervical rib (21700)						
Division of scalenus anticus; with resection of cervical rib (21705)						
Open treatment of sternum fracture with or without skeletal fixation (21825)						
Hyoid myotomy and suspension (21685) secondary procedure code						
Removal of sternal wire(s) v2.3						
Unlisted procedure, neck or thorax (21899)						
Major reconstruction, chest wall (posttraumatic) (32820)						

STS General Thoracic Surgery Database
All Patients

Participant 99999
STS Period Ending 12/31/2016

Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
CHEST WALL AND NECK - continued						
Muscle flap, neck (15732)						
Muscle flap; trunk (i.e., intercostal, pectoralis or serratus muscle) (15734)						
Excision of chest wall tumor including ribs (19260)						
Excision of chest wall tumor involving ribs, with reconstruction (19271)						
Radical resection of tumor (e.g., malignant neoplasm), soft tissue of neck or thorax (21557)						
Radical resection of sternum (21630)						
Radical resection of sternum; with mediastinal lymphadenectomy (21632)						
Reconstructive repair of pectus excavatum or carinatum; open (21740)						
Reconstructive repair of pectus, minimally invasive approach (Nuss procedure), without thoracoscopy (21742)						
Reconstructive repair of pectus, minimally invasive approach (Nuss procedure), with thoracoscopy (21743)						
MISCELLANEOUS						
Thoracoscopy, diagnostic pericardial sac, with biopsy (32604)						
Thoracoscopy, surgical; with removal of clot or foreign body from pericardial sac (32658)						
Thoracoscopy, surgical; with creation of pericardial window or partial resection of pericardial sac for drainage (32659)						
Tube pericardiostomy (33015)						
Pericardial window (33025)						
Thoracoscopy, surgical; with thoracic sympathectomy (32664)						
Removal substernal thyroid, cervical approach (60271)						
Application of wound vac (97605, 97606)						
Stereotactic radiosurgery (SRS) and stereotactic body radiotherapy (SBRT) surgeon participation (32701)						
Other Minor Procedure						
Thoracoscopy, surgical; with total pericardiectomy (32660)						
Thoracoscopy, surgical; with excision of pericardial cyst, tumor, or mass (32661)						
Ligation thoracic duct (38381)						
Intraoperative jejunostomy (44015)						
Omental flap (49904)						
Transthoracic thyroidectomy (60270)						

STS General Thoracic Surgery Database
All Patients

Participant 99999
STS Period Ending 12/31/2016

Table 7: Primary Procedures Operative Mortality, Last 3 Years, Jan 2014 - Dec 2016 - continued

Primary Procedure by Organ System	Incidence #	Participant Operative Mortality		Incidence #	STS Operative Mortality	
		# / Eligible	%		# / Eligible	%
MISCELLANEOUS - continued SVC resection and reconstruction (34502) Other MISSING DATA [Missing data]						

STS General Thoracic Surgery Database
Esophageal Cancer

Participant 99999
STS Period Ending 12/31/2016

Inclusion Criteria

Any of the following disease categories chosen as Primary

- Esophageal cancer, lower third 150.5
- Esophageal cancer, middle third 150.4
- Esophageal cancer, upper third 150.3
- Esophageal cancer, esophagogastric junction (cardia) 151.0

AND any of the following procedures were selected as Primary

- Transhiatal-Total esophagectomy, without thoracotomy, with cervical esophagogastrostomy (43107)
- Three hole-Total esophagectomy with thoracotomy; with cervical esophagogastrostomy (43112)
- Ivor Lewis-Partial esophagectomy, distal two-thirds, with thoracotomy and separate abdominal incision (43117)
- Thoracoabdominal-Partial esophagectomy, thoracoabdominal approach (43122)
- Minimally invasive esophagectomy, Ivor Lewis approach (43XXX)
- Minimally invasive esophagectomy, Abdominal and neck approach (43XXX)
- Total esophagectomy without thoracotomy; with colon interposition or small intestine reconstruction (43108)
- Total esophagectomy with thoracotomy; with colon interposition or small intestine reconstruction (43113)
- Partial esophagectomy, with thoracotomy and separate abdominal incision with colon interposition or small intestine (43118)
- Partial esophagectomy, distal two-thirds, with thoracotomy only (43121)
- Partial esophagectomy, thoracoabdominal with colon interposition or small intestine (43123)

STS General Thoracic Surgery Database
Esophageal Cancer

Participant 99999
STS Period Ending 12/31/2016

Table 8: Esophagectomy Clinical Staging Procedures, Pathologic Node Harvesting and Margin Status

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
Clinical Staging Done	-	-	-	-
Missing	-	-	-	-
Clinical Staging Methods ¹				
Bronchoscopy	-	-	-	-
EBUS	-	-	-	-
EUS	-	-	-	-
Mediastinoscopy/Chamberlain	-	-	-	-
PET or PET/CT	-	-	-	-
CT	-	-	-	-
VATS	-	-	-	-
EGD	-	-	-	-
Laparoscopy	-	-	-	-
Endoscopic Mucosal Resection ²	-	-	-	-
Other	-	-	-	-
Total Number of Lymph Nodes Sampled/Harvested				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Missing (%)				
Esophageal CA Resection Margins Positive	-	-	-	-
Missing	-	-	-	-

¹Among patients who had Clinical Staging Done

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Lung Cancer

Participant 99999
STS Period Ending 12/31/2016

Inclusion Criteria

Any of the following disease categories chosen as Primary

- Lung cancer, main bronchus, carina 162.2
- Lung cancer, upper lobe 162.3
- Lung cancer, middle lobe 162.4
- Lung cancer, lower lobe 162.5
- Lung cancer, location unspecified 162.9

AND any of the following procedures were selected as Primary

- Removal of lung, total pneumonectomy 32440
- Removal of lung, sleeve (carinal) pneumonectomy 32442
- Removal of lung, single lobe (lobectomy) 32480
- Removal of lung, two lobes (bilobectomy) 32482
- Removal of lung, single segment (segmentectomy) 32484
- Removal of lung, sleeve lobectomy 32486
- Removal of lung, completion pneumonectomy 32488
- Thoracotomy with therapeutic wedge resection (eg mass nodule) initial (3250X)
- Thoracoscopy with therapeutic wedge resection (eg mass or nodule, initial, unilateral) (3266X)
- Thoracoscopy with removal of lung, pneumonectomy (3266X5)
- Thoracoscopy with removal of two lobes (bilobectomy) (3266X3)
- Thoracoscopy with removal of a single lung segment (segmentectomy) (3266X4)
- Thoracoscopy, surgical; with lobectomy (32663)
- Thoracoscopy with diagnostic wedge resection followed by anatomic lung resection (3266X2),
- Thoracotomy with diagnostic wedge resection followed by anatomic lung resection (+3250X2)

STS General Thoracic Surgery Database
Lung Cancer

Participant 99999
STS Period Ending 12/31/2016

Table 9: Lung Cancer Clinical Staging Procedures, Pathologic Node Harvesting and Margin Status

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
Clinical Staging Done	-	-	-	-
Missing	-	-	-	-
Clinical Staging Methods ¹				
Bronchoscopy	-	-	-	-
EBUS	-	-	-	-
EUS	-	-	-	-
Mediastinoscopy/Chamberlain	-	-	-	-
PET or PET/CT	-	-	-	-
CT	-	-	-	-
VATS	-	-	-	-
Laparoscopy	-	-	-	-
Brain MRI ²	-	-	-	-
Brain CT Scan ²	-	-	-	-
Needle Biopsy ²	-	-	-	-
Other	-	-	-	-
Total Number of Lymph Nodes Sampled/Harvested				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Missing(%)				
Lung CA Resection Margins Positive	-	-	-	-
Missing	-	-	-	-

¹Among patients who had Clinical Staging Done

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Esophagectomy

Participant 99999
STS Period Ending 12/31/2016

Inclusion Criteria

Primary Procedure Indicated as:

Transhiatal-Total esophagectomy, without thoracotomy, with cervical esophagogastrostomy (43107)
Three hole-Total esophagectomy with thoracotomy; with cervical esophagogastrostomy (43112)
Ivor Lewis-Partial esophagectomy, distal two-thirds, with thoracotomy and separate abdominal incision (43117)
Thoracoabdominal-Partial esophagectomy, thoracoabdominal approach (43122)
Minimally invasive esophagectomy, Ivor Lewis approach (43XXX)
Minimally invasive esophagectomy, Abdominal and neck approach (43XXX)
Total esophagectomy without thoracotomy; with colon interposition or small intestine reconstruction (43108)
Total esophagectomy with thoracotomy; with colon interposition or small intestine reconstruction (43113)
Partial esophagectomy, with thoracotomy and separate abdominal incision with colon interposition or small intestine (43118)
Partial esophagectomy, distal two-thirds, with thoracotomy only (43121)
Partial esophagectomy, thoracoabdominal with colon interposition or small intestine (43123)
Partial esophagectomy, cervical, with free intestinal graft, including microvascular anastomosis (43116)
Total or partial esophagectomy, without reconstruction with cervical esophagostomy (43124)
Minimally invasive three hole esophagectomy (43XXX)

STS General Thoracic Surgery Database
Esophagectomy

Participant 99999
STS Period Ending 12/31/2016

Table 10: Esophagectomy, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing, Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height				
Missing weight				
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Esophagectomy

Participant 99999
STS Period Ending 12/31/2016

Table 10: Esophagectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Esophagus - Benign	-	-	-	-
Esophageal tumor- benign (i.e., leiomyoma)-211.0	-	-	-	-
Esophageal stricture-530.3	-	-	-	-
Achalasia of esophagus-530.0	-	-	-	-
Esophageal perforation-530.4	-	-	-	-
Esophagus - Cancer	-	-	-	-
Esophageal cancer, lower third-150.5	-	-	-	-
Esophageal cancer, middle third-150.4	-	-	-	-
Esophageal cancer, upper third-150.3	-	-	-	-
Esophageal cancer, esophagogastric junction (cardia)-151.0	-	-	-	-
Esophageal Cancer Clinical Staging ¹				
Clinical Staging Done	-	-	-	-
Primary Tumor				
T0	-	-	-	-
Tis	-	-	-	-
T1	-	-	-	-

¹Among patients with Esophageal Cancer

STS General Thoracic Surgery Database
Esophagectomy

Participant 99999
STS Period Ending 12/31/2016

Table 10: Esophagectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Primary Tumor - continued				
T2	-	-	-	-
T3	-	-	-	-
T4	-	-	-	-
Regional Lymph Nodes ¹				
N0	-	-	-	-
N1	-	-	-	-
NX	-	-	-	-
Clinical Diagnosis of Nodal Involvement ²	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-
Intraoperative Blood Transfusion (PRBC)				
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-
Class IV	-	-	-	-
Class V	-	-	-	-
Class VI	-	-	-	-
Missing	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Esophagectomy

Participant 99999
STS Period Ending 12/31/2016

Table 10: Esophagectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
MORTALITY				
In-hospital mortality	-	-	-	-
Operative mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				

³Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Esophagectomy

Participant 99999
STS Period Ending 12/31/2016

Table 10: Esophagectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
POST-OPERATIVE EVENTS				
Unexpected Return to OR ¹	-	-	-	-
Primary Reason for Return to OR				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ²	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ³	-	-	-	-
Other pulmonary event	-	-	-	-
Cardiovascular				
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-
Myocardial infarct	-	-	-	-
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-

¹ Among patients who had an unexpected return to the OR

² Available with v2.2 only, population only includes those patients

³ Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Esophagectomy

Participant 99999
STS Period Ending 12/31/2016

Table 10: Esophagectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Postoperative Packed Red Blood Cells	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-
Conduit Necrosis Req. Surgery ²	-	-	-	-
Delayed conduit emptying req. intervention or maint. of NG drainage > 7 days post op ²	-	-	-	-
Clostridium Difficile infection ²	-	-	-	-
Other GI event	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Esophagectomy

Participant 99999
STS Period Ending 12/31/2016

Table 10: Esophagectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-
PATHOLOGICAL STAGING¹				
Primary Tumor				
T0	-	-	-	-
Tis	-	-	-	-
T1a	-	-	-	-
T1b	-	-	-	-
T2	-	-	-	-
T3	-	-	-	-
T4a	-	-	-	-
T4b	-	-	-	-
TX	-	-	-	-
Regional Lymph Nodes				
N0	-	-	-	-
N1	-	-	-	-
N2	-	-	-	-
N3	-	-	-	-
NX	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-

¹Among patients with Esophageal Cancer

STS General Thoracic Surgery Database
Esophagectomy

Participant 99999
STS Period Ending 12/31/2016

Table 10: Esophagectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Histopathologic				
H1	-	-	-	-
H2	-	-	-	-
Other ¹	-	-	-	-
Histologic Grade				
GX	-	-	-	-
G1	-	-	-	-
G2	-	-	-	-
G3	-	-	-	-
G4	-	-	-	-

¹Available with v2.3 only, population only includes those patients

**STS General Thoracic Surgery Database
Segmentectomy**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

Primary Procedure Indicated as:

Removal of lung, single segment (segmentectomy) (32484)

Thoracoscopy with removal of a single lung segment (segmentectomy) (32669)

STS General Thoracic Surgery Database
Segmentectomy

Participant 99999
STS Period Ending 12/31/2016

Table 11: Segmentectomy, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing , Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height	-	-	-	-
Missing weight	-	-	-	-
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Segmentectomy

Participant 99999
STS Period Ending 12/31/2016

Table 11: Segmentectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Lung - Benign	-	-	-	-
Lung abscess-513.0	-	-	-	-
Bronchiectasis-494.0	-	-	-	-
Lung nodule, benign (not a tumor, e.g., granuloma, subpleural lymph node, pulmonary infarct)-518.89	-	-	-	-
Lung - Cancer	-	-	-	-
Lung cancer, main bronchus, carina-162.2	-	-	-	-
Lung cancer, upper lobe-162.3	-	-	-	-
Lung cancer, middle lobe-162.4	-	-	-	-
Lung cancer, lower lobe-162.5	-	-	-	-
Lung cancer, location unspecified-162.9	-	-	-	-
Lung - Metastatic				
Lung tumor, metastatic-197.0	-	-	-	-

STS General Thoracic Surgery Database
Segmentectomy

Participant 99999
STS Period Ending 12/31/2016

Table 11: Segmentectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Lung Cancer Clinical Staging ¹				
Clinical Staging Done	-	-	-	-
Primary Tumor ²				
T1a	-	-	-	-
T1b	-	-	-	-
T2a	-	-	-	-
T2b	-	-	-	-
T3	-	-	-	-
T4	-	-	-	-
Nodal Metastasis				
N0	-	-	-	-
N1	-	-	-	-
N2	-	-	-	-
N3	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-
Intraoperative Blood Transfusion (PRBC)	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-
Class IV	-	-	-	-
Class V	-	-	-	-
Class VI	-	-	-	-
Missing	-	-	-	-

¹Among patients with Lung Cancer

²Records were mapped to these stages using a combination of the tumor size and the locations reported for the invasion of adjacent structures

STS General Thoracic Surgery Database
Segmentectomy

Participant 99999
STS Period Ending 12/31/2016

Table 11: Segmentectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
MORTALITY				
In-hospital mortality	-	-	-	-
Operative mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				

¹Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Segmentectomy

Participant 99999
STS Period Ending 12/31/2016

Table 11: Segmentectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
POST-OPERATIVE EVENTS				
Unexpected Return to OR	-	-	-	-
Primary Reason for Return to OR ¹				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ²	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ³	-	-	-	-
Other pulmonary event	-	-	-	-
Cardiovascular				
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-
Myocardial infarct	-	-	-	-
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-

¹ Among patients who had an unexpected return to the OR

² Available with v2.2 only, population only includes those patients

³ Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Segmentectomy

Participant 99999
STS Period Ending 12/31/2016

Table 11: Segmentectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Postoperative Packed Red Blood Cells	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-
Conduit Necrosis Req. Surgery ²	-	-	-	-
Delayed conduit emptying req. intervention				
or maint. of NG drainage > 7 days post op ²	-	-	-	-
Clostridium Difficile infection ²	-	-	-	-
Other GI event	-	-	-	-
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Segmentectomy

Participant 99999
STS Period Ending 12/31/2016

Table 11: Segmentectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-
LUNG CANCER PATHOLOGICAL STAGING¹				
Primary Tumor				
T1a	-	-	-	-
T1b	-	-	-	-
T2a	-	-	-	-
T2b	-	-	-	-
T3	-	-	-	-
T4	-	-	-	-
Regional Nodes				
N0	-	-	-	-
N1	-	-	-	-
N2	-	-	-	-
N3	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-

¹Among patients with Lung Cancer

**STS General Thoracic Surgery Database
Pneumonectomy**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

Primary Procedure Indicated as:

Removal of lung, total pneumonectomy; (32440)

Thoracoscopy with removal of lung, pneumonectomy (32671)

STS General Thoracic Surgery Database
Pneumonectomy

Participant 99999
STS Period Ending 12/31/2016

Table 12: Pneumonectomy, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing , Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height	-	-	-	-
Missing weight	-	-	-	-
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Pneumonectomy

Participant 99999
STS Period Ending 12/31/2016

Table 12: Pneumonectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Lung - Benign	-	-	-	-
Lung abscess-513.0	-	-	-	-
Bronchiectasis-494.0	-	-	-	-
Lung nodule, benign (not a tumor, e.g., granuloma, subpleural lymph node, pulmonary infarct)-518.89	-	-	-	-
Lung - Cancer	-	-	-	-
Lung cancer, main bronchus, carina-162.2	-	-	-	-
Lung cancer, upper lobe-162.3	-	-	-	-
Lung cancer, middle lobe-162.4	-	-	-	-
Lung cancer, lower lobe-162.5	-	-	-	-
Lung cancer, location unspecified-162.9	-	-	-	-
Lung - Metastatic				
Lung tumor, metastatic-197.0	-	-	-	-

STS General Thoracic Surgery Database
Pneumonectomy

Participant 99999
STS Period Ending 12/31/2016

Table 12: Pneumonectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Lung Cancer Clinical Staging ¹				
Clinical Staging Done	-	-	-	-
Primary Tumor ²				
T1a	-	-	-	-
T1b	-	-	-	-
T2a	-	-	-	-
T2b	-	-	-	-
T3	-	-	-	-
T4	-	-	-	-
Nodal Metastasis				
N0	-	-	-	-
N1	-	-	-	-
N2	-	-	-	-
N3	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-
Intraoperative Blood Transfusion (PRBC)				
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-
Class IV	-	-	-	-
Class V	-	-	-	-

¹Among patients with Lung Cancer

²Records were mapped to these stages using a combination of the tumor size and the locations reported for the invasion of adjacent structures

STS General Thoracic Surgery Database
Pneumonectomy

Participant 99999
STS Period Ending 12/31/2016

Table 12: Pneumonectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
ASA - continued				
Class VI	-	-	-	-
Missing	-	-	-	-
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV ₁ , % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
MORTALITY				
In-hospital mortality	-	-	-	-
Operative Mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				

¹Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Pneumonectomy

Participant 99999
STS Period Ending 12/31/2016

Table 12: Pneumonectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
POST-OPERATIVE EVENTS				
Unexpected Return to OR	-	-	-	-
Primary Reason for Return to OR ¹				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ²	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ³	-	-	-	-
Other pulmonary event	-	-	-	-
Cardiovascular				
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-
Myocardial infarct	-	-	-	-

¹ Among patients who had an unexpected return to the OR

² Available with v2.2 only, population only includes those patients

³ Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Pneumonectomy

Participant 99999
STS Period Ending 12/31/2016

Table 12: Pneumonectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Cardiovascular - continued				
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Postoperative Packed Red Blood Cells	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-
Conduit Necrosis Req. Surgery ²	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Pneumonectomy

Participant 99999
STS Period Ending 12/31/2016

Table 12: Pneumonectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Gastrointestinal - continued				
Delayed conduit emptying req. intervention or maint. of NG drainage > 7 days post op ¹	-	-	-	-
Clostridium Difficile infection ¹	-	-	-	-
Other GI event	-	-	-	-
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-
LUNG CANCER PATHOLOGICAL STAGING¹				
Primary Tumor				
T1a	-	-	-	-
T1b	-	-	-	-
T2a	-	-	-	-
T2b	-	-	-	-
T3	-	-	-	-
T4	-	-	-	-
Regional Nodes				
N0	-	-	-	-
N1	-	-	-	-
N2	-	-	-	-
N3	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Among patients with Lung Cancer

**STS General Thoracic Surgery Database
Lobectomy**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

Primary Procedure Indicated as:

- Removal of lung, single lobe (lobectomy) (32480)
- Thoracoscopy, surgical; with lobectomy, total or segmental (32663)
- Removal of lung, two lobes (bilobectomy) (32482)
- Removal of lung, sleeve lobectomy (32486)
- Thoracoscopy with removal of two lobes (bilobectomy) (32670)

STS General Thoracic Surgery Database
Lobectomy

Participant 99999
STS Period Ending 12/31/2016

Table 13: Lobectomy, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing , Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height	-	-	-	-
Missing weight	-	-	-	-
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Lobectomy

Participant 99999
STS Period Ending 12/31/2016

Table 13: Lobectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Lung - Benign	-	-	-	-
Lung abscess-513.0	-	-	-	-
Bronchiectasis-494.0	-	-	-	-
Lung nodule, benign (not a tumor, e.g., granuloma, subpleural lymph node, pulmonary infarct)-518.89	-	-	-	-
Lung - Cancer	-	-	-	-
Lung cancer, main bronchus, carina-162.2	-	-	-	-
Lung cancer, upper lobe-162.3	-	-	-	-
Lung cancer, middle lobe-162.4	-	-	-	-
Lung cancer, lower lobe-162.5	-	-	-	-
Lung cancer, location unspecified-162.9	-	-	-	-
Lung - Metastatic				
Lung tumor, metastatic-197.0	-	-	-	-

STS General Thoracic Surgery Database
Lobectomy

Participant 99999
STS Period Ending 12/31/2016

Table 13: Lobectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Lung Cancer Clinical Staging ¹				
Clinical Staging Done	-	-	-	-
Primary Tumor ²				
T1a	-	-	-	-
T1b	-	-	-	-
T2a	-	-	-	-
T2b	-	-	-	-
T3	-	-	-	-
T4	-	-	-	-
Nodal Metastasis				
N0	-	-	-	-
N1	-	-	-	-
N2	-	-	-	-
N3	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-
Intraoperative Blood Transfusion (PRBC)				
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-
Class IV	-	-	-	-
Class V	-	-	-	-

¹Among patients with Lung Cancer

²Records were mapped to these stages using a combination of the tumor size and the locations reported for the invasion of adjacent structures

STS General Thoracic Surgery Database
Lobectomy

Participant 99999
STS Period Ending 12/31/2016

Table 13: Lobectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
ASA - continued				
Class VI	-	-	-	-
Missing	-	-	-	-
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV ₁ , % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
MORTALITY				
In-hospital mortality	-	-	-	-
Operative mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				

¹Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Lobectomy

Participant 99999
STS Period Ending 12/31/2016

Table 13: Lobectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
POST-OPERATIVE EVENTS				
Unexpected Return to OR	-	-	-	-
Primary Reason for Return to OR ¹				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ²	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ³	-	-	-	-
Other pulmonary event	-	-	-	-
Cardiovascular				
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-

¹ Among patients who had an unexpected return to the OR

² Available with v2.2 only, population only includes those patients

³ Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Lobectomy

Participant 99999
STS Period Ending 12/31/2016

Table 13: Lobectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Cardiovascular - continued				
Myocardial infarct	-	-	-	-
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Postoperative Packed Red Blood Cells	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-

¹Available with v2.2 only, population only includes those patients

STS General Thoracic Surgery Database
Lobectomy

Participant 99999
STS Period Ending 12/31/2016

Table 13: Lobectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Gastrointestinal - continued				
Conduit Necrosis Req. Surgery ¹	-	-	-	-
Delayed conduit emptying req. intervention or maint. of NG drainage > 7 days post op ¹	-	-	-	-
Clostridium Difficile infection ¹	-	-	-	-
Other GI event	-	-	-	-
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-
LUNG CANCER PATHOLOGICAL STAGING²				
Primary Tumor				
T1a	-	-	-	-
T1b	-	-	-	-
T2a	-	-	-	-
T2b	-	-	-	-
T3	-	-	-	-
T4	-	-	-	-
Regional Nodes				
N0	-	-	-	-
N1	-	-	-	-
N2	-	-	-	-
N3	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-

¹Available with v2.3 only, population only includes those patients

²Among patients with Lung Cancer

**STS General Thoracic Surgery Database
Wedge Resection**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

Primary Procedure Indicated as:

- Thoracoscopy with therapeutic wedge resection (eg mass nodule) initial, unilateral (32666)
- Thoracotomy with therapeutic wedge resection (eg mass nodule) initial (32505)

STS General Thoracic Surgery Database
Wedge Resection

Participant 99999
STS Period Ending 12/31/2016

Table 14: Wedge Resection, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing , Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height	-	-	-	-
Missing weight	-	-	-	-
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Wedge Resection

Participant 99999
STS Period Ending 12/31/2016

Table 14: Wedge Resection, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Lung - Benign	-	-	-	-
Lung abscess-513.0	-	-	-	-
Bronchiectasis-494.0	-	-	-	-
Lung nodule, benign (not a tumor, e.g., granuloma, subpleural lymph node, pulmonary infarct)-518.89	-	-	-	-
Lung - Cancer	-	-	-	-
Lung cancer, main bronchus, carina-162.2	-	-	-	-
Lung cancer, upper lobe-162.3	-	-	-	-
Lung cancer, middle lobe-162.4	-	-	-	-
Lung cancer, lower lobe-162.5	-	-	-	-
Lung cancer, location unspecified-162.9	-	-	-	-
Lung - Metastatic				
Lung tumor, metastatic-197.0	-	-	-	-

STS General Thoracic Surgery Database
Wedge Resection

Participant 99999
STS Period Ending 12/31/2016

Table 14: Wedge Resection, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Lung Cancer Clinical Staging ¹				
Clinical Staging Done	-	-	-	-
Primary Tumor ²				
T1a	-	-	-	-
T1b	-	-	-	-
T2a	-	-	-	-
T2b	-	-	-	-
T3	-	-	-	-
T4	-	-	-	-
Nodal Metastasis				
N0	-	-	-	-
N1	-	-	-	-
N2	-	-	-	-
N3	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-
Intraoperative Blood Transfusion (PRBC)				
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-
Class IV	-	-	-	-
Class V	-	-	-	-

¹Among patients with Lung Cancer

²Records were mapped to these stages using a combination of the tumor size and the locations reported for the invasion of adjacent structures

STS General Thoracic Surgery Database
Wedge Resection

Participant 99999
STS Period Ending 12/31/2016

Table 14: Wedge Resection, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
ASA - continued				
Class VI	-	-	-	-
Missing	-	-	-	-
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV ₁ , % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
MORTALITY				
In-hospital mortality	-	-	-	-
Operative Mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				

¹Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Wedge Resection

Participant 99999
STS Period Ending 12/31/2016

Table 14: Wedge Resection, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
POST-OPERATIVE EVENTS				
Unexpected Return to OR	-	-	-	-
Primary Reason for Return to OR ¹				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ²	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ³	-	-	-	-
Other pulmonary event	-	-	-	-
Cardiovascular				
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-
Myocardial infarct	-	-	-	-

¹ Among patients who had an unexpected return to the OR

² Available with v2.2 only, population only includes those patients

³ Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Wedge Resection

Participant 99999
STS Period Ending 12/31/2016

Table 14: Wedge Resection, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Cardiovascular - continued				
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Postoperative Packed Red Blood Cells	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-
Conduit Necrosis Req. Surgery ²	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Wedge Resection

Participant 99999
STS Period Ending 12/31/2016

Table 14: Wedge Resection, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Gastrointestinal - continued				
Delayed conduit emptying req. intervention or maint. of NG drainage > 7 days post op ¹	-	-	-	-
Clostridium Difficile infection ¹	-	-	-	-
Other GI event	-	-	-	-
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-
LUNG CANCER PATHOLOGICAL STAGING²				
Primary Tumor				
T1a	-	-	-	-
T1b	-	-	-	-
T2a	-	-	-	-
T2b	-	-	-	-
T3	-	-	-	-
T4	-	-	-	-
Regional Nodes				
N0	-	-	-	-
N1	-	-	-	-
N2	-	-	-	-
N3	-	-	-	-
Distant Metastasis				
M0	-	-	-	-
M1	-	-	-	-

¹Available with v2.3 only, population only includes those patients

²Among patients with Lung Cancer

**STS General Thoracic Surgery Database
Excision of Mediastinal Mass or Cyst**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

Primary Procedure Indicated as:

- Thoracoscopy, surgical; with excision of mediastinal cyst, tumor, or mass (32662)
- Excision of mediastinal cyst, open, Transthoracic approach (39200)
- Excision of mediastinal tumor(open, Transthoracic approach) (39220)

STS General Thoracic Surgery Database
Excision of Mediastinal Mass or Cyst

Participant 99999
STS Period Ending 12/31/2016

Table 15: Excision of Mediastinal Mass or Cyst, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing , Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height	-	-	-	-
Missing weight	-	-	-	-
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Excision of Mediastinal Mass or Cyst

Participant 99999
STS Period Ending 12/31/2016

Table 15: Excision of Mediastinal Mass or Cyst, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Mediastinum (includes any of the following) Anterior				
mediastinal tumor primary (germ cell cancer, seminoma)-164.2	-	-	-	-
Anterior mediastinal tumor-metastatic-197.1	-	-	-	-
Anterior mediastinal tumor- benign-(e.g., teratoma)-212.5	-	-	-	-
Anterior mediastinal tumor- thymus tumor (thymoma, thymic carcinoma)-164.0	-	-	-	-
Lymphoma, intrathoracic-202.82	-	-	-	-
Posterior mediastinal malignant tumor- primary-164.3	-	-	-	-
Posterior mediastinal tumor-metastatic-197.1	-	-	-	-
Posterior mediastinal tumor- benign (i.e., neurogenic tumor)- 212.5	-	-	-	-
Myasthenia gravis-358.0	-	-	-	-
Mediastinal cyst, Bronchogenic-519.3	-	-	-	-
Mediastinal cyst, Foregut duplication-519.3	-	-	-	-
Mediastinal cyst, Pericardial-519.3	-	-	-	-
Mediastinal cyst, Thymic-519.3	-	-	-	-

STS General Thoracic Surgery Database
Excision of Mediastinal Mass or Cyst

Participant 99999
STS Period Ending 12/31/2016

Table 15: Excision of Mediastinal Mass or Cyst, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Intraoperative Blood Transfusion (PRBC)	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-
Class IV	-	-	-	-
Class V	-	-	-	-
Class VI	-	-	-	-
Missing	-	-	-	-
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV ₁ , % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				

¹Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Excision of Mediastinal Mass or Cyst

Participant 99999
STS Period Ending 12/31/2016

Table 15: Excision of Mediastinal Mass or Cyst, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
MORTALITY				
In-hospital mortality	-	-	-	-
Operative Mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
POST-OPERATIVE EVENTS				
Unexpected Return to OR	-	-	-	-
Primary Reason for Return to OR ¹				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-

¹ Among patients who had an unexpected return to the OR

STS General Thoracic Surgery Database
Excision of Mediastinal Mass or Cyst

Participant 99999
STS Period Ending 12/31/2016

Table 15: Excision of Mediastinal Mass or Cyst, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Pulmonary - continued				
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ¹	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ²	-	-	-	-
Other pulmonary event	-	-	-	-
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-
Myocardial infarct	-	-	-	-
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Number of PRBC Units Used				
Postoperative Packed Red Blood Cells				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Excision of Mediastinal Mass or Cyst

Participant 99999
STS Period Ending 12/31/2016

Table 15: Excision of Mediastinal Mass or Cyst, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Hematology -continued				
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-
Conduit Necrosis Req. Surgery ²	-	-	-	-
Delayed conduit emptying req. intervention or maint. of NG drainage > 7 days post op ²	-	-	-	-
Clostridium Difficile infection ²	-	-	-	-
Other GI event	-	-	-	-
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

**STS General Thoracic Surgery Database
Thymectomy**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

Primary Procedure Indicated as:

- Thymectomy, transcervical approach (60520)
- Thymectomy, transthoracic approach (60521)
- Thymectomy, transthoracic approach, with radical mediastinal dissection (60522)
- Thoracoscopy with resection of thymus, unilateral or bilateral (32673)

STS General Thoracic Surgery Database
Thymectomy

Participant 99999
STS Period Ending 12/31/2016

Table 16: Thymectomy, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing , Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height	-	-	-	-
Missing weight	-	-	-	-
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Thymectomy

Participant 99999
STS Period Ending 12/31/2016

Table 16: Thymectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Mediastinum (includes any of the following) Anterior				
mediastinal tumor primary (germ cell cancer, seminoma)-164.2	-	-	-	-
Anterior mediastinal tumor-metastatic-197.1	-	-	-	-
Anterior mediastinal tumor- benign-(e.g., teratoma)-212.5	-	-	-	-
Anterior mediastinal tumor- thymus tumor (thymoma, thymic carcinoma)-164.0	-	-	-	-
Lymphoma, intrathoracic-202.82	-	-	-	-
Posterior mediastinal malignant tumor- primary-164.3	-	-	-	-
Posterior mediastinal tumor-metastatic-197.1	-	-	-	-
Posterior mediastinal tumor- benign (i.e., neurogenic tumor)- 212.5	-	-	-	-
Myasthenia gravis-358.0	-	-	-	-
Mediastinal cyst, Bronchogenic-519.3	-	-	-	-
Mediastinal cyst, Foregut duplication-519.3	-	-	-	-
Mediastinal cyst, Pericardial-519.3	-	-	-	-
Mediastinal cyst, Thymic-519.3	-	-	-	-

STS General Thoracic Surgery Database
Thymectomy

Participant 99999
STS Period Ending 12/31/2016

Table 16: Thymectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Intraoperative Blood Transfusion (PRBC)	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-
Class IV	-	-	-	-
Class V	-	-	-	-
Class VI	-	-	-	-
Missing	-	-	-	-
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				

¹Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Thymectomy

Participant 99999
STS Period Ending 12/31/2016

Table 16: Thymectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
MORTALITY				
In-hospital mortality	-	-	-	-
Operative Mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
POST-OPERATIVE EVENTS				
Unexpected Return to OR	-	-	-	-
Primary Reason for Return to OR ¹				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-

¹ Among patients who had an unexpected return to the OR

STS General Thoracic Surgery Database
Thymectomy

Participant 99999
STS Period Ending 12/31/2016

Table 16: Thymectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	Participant			STS
	2014	2015	2016	Jan 14-Dec 16
Pulmonary - continued				
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ¹	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ²	-	-	-	-
Other pulmonary event	-	-	-	-
Cardiovascular				
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-
Myocardial infarct	-	-	-	-
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Postoperative Packed Red Blood Cells	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

**STS General Thoracic Surgery Database
Thymectomy**

**Participant 99999
STS Period Ending 12/31/2016**

Table 16: Thymectomy, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Hematology - continued				
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-
Conduit Necrosis Req. Surgery ²	-	-	-	-
Delayed conduit emptying req. intervention or maint. of NG drainage > 7 days post op ²	-	-	-	-
Clostridium Difficile infection ²	-	-	-	-
Other GI event	-	-	-	-
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

**STS General Thoracic Surgery Database
Decortication**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

Primary Procedure Indicated as:

Decortication, pulmonary, total (32220)

Decortication, pulmonary, partial (32225)

Decortication and parietal pleurectomy (32320)

Thoracoscopy, surgical; with partial pulmonary decortication (32651)

Thoracoscopy, surgical; with total pulmonary decortication (32652)

STS General Thoracic Surgery Database
Decortication

Participant 99999
STS Period Ending 12/31/2016

Table 17: Decortication, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing , Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height	-	-	-	-
Missing weight	-	-	-	-
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Decortication

Participant 99999
STS Period Ending 12/31/2016

Table 17: Decortication, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Empyema with fistula-510.0	-	-	-	-
Empyema without fistula-510.9	-	-	-	-
Pleural effusion (sterile)-511.9	-	-	-	-
Pleural effusion, infected- (empyema)-511.1	-	-	-	-
Intraoperative Blood Transfusion (PRBC)	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-

STS General Thoracic Surgery Database
Decortication

Participant 99999
STS Period Ending 12/31/2016

Table 17: Decortication, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
ASA - continued				
Class IV	-	-	-	-
Class V	-	-	-	-
Class VI	-	-	-	-
Missing	-	-	-	-
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV ₁ , % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
MORTALITY				
In-hospital mortality	-	-	-	-
Operative Mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				

¹Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Decortication

Participant 99999
STS Period Ending 12/31/2016

Table 17: Decortication, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
POST-OPERATIVE EVENTS				
Unexpected Return to OR	-	-	-	-
Primary Reason for Retrun to OR ¹				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ²	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ³	-	-	-	-
Other pulmonary event	-	-	-	-
Cardiovascular				
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-
Myocardial infarct	-	-	-	-

¹ Among patients who had an unexpected return to the OR

² Available with v2.2 only, population only includes those patients

³ Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Decortication

Participant 99999
STS Period Ending 12/31/2016

Table 17: Decortication, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Cardiovascular - continued				
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Postoperative Packed Red Blood Cells	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-
Conduit Necrosis Req. Surgery ²	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Decortication

Participant 99999
STS Period Ending 12/31/2016

Table 17: Decortication, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Gastrointestinal - continued				
Delayed conduit emptying req. intervention or maint. of NG drainage > 7 days post op ¹	-	-	-	-
Clostridium Difficile infection ¹	-	-	-	-
Other GI event	-	-	-	-
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-

¹Available with v2.2 only, population only includes those patients

**STS General Thoracic Surgery Database
Fundoplication, Paraesophageal Hiatal Hernia**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

Primary Procedure Indicated as:

- Laparoscopy, surgical with repair of paraesophageal hernia (fundoplasty) without mesh (43281)
- Laparoscopy, surgical with repair of paraesophageal hernia (fundoplasty) with mesh (43282)
- Repair, paraesophageal hiatal hernia via laparotomy without mesh (43332)
- Repair, paraesophageal hiatal hernia via laparotomy with mesh (43333)
- Repair, paraesophageal hiatal hernia via thoracotomy without mesh (43334)
- Repair, paraesophageal hiatal hernia via thoracotomy with mesh (43335)
- Repair, paraesophageal hiatal hernia via thoracoabdominal approach without mesh (43336)
- Repair, paraesophageal hiatal hernia via thoracoabdominal approach with mesh (43337)

STS General Thoracic Surgery Database
Fundoplication, Paraesophageal Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 18: Fundoplication, Paraesophageal Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing , Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height	-	-	-	-
Missing weight	-	-	-	-
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Fundoplication, Paraesophageal Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 18: Fundoplication, Paraesophageal Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Barrett's esophagus-530.85	-	-	-	-
Gastroesophageal reflux (GERD)-530.81	-	-	-	-
Intraoperative Blood Transfusion (PRBC)	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-
Class IV	-	-	-	-
Class V	-	-	-	-
Class VI	-	-	-	-
Missing	-	-	-	-

STS General Thoracic Surgery Database
Fundoplication, Paraesophageal Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 18: Fundoplication, Paraesophageal Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
MORTALITY				
In-hospital mortality	-	-	-	-
Operative Mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				

¹Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Fundoplication, Paraesophageal Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 18: Fundoplication, Paraesophageal Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
POST-OPERATIVE EVENTS				
Unexpected Return to OR	-	-	-	-
Primary Reason for Return to OR ¹				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ²	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ³	-	-	-	-
Other pulmonary event	-	-	-	-
Cardiovascular				
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-
Myocardial infarct	-	-	-	-
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-

¹Available with v2.2 only, population only includes those patients

² Among patients who had an unexpected return to the OR

³Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Fundoplication, Paraesophageal Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 18: Fundoplication, Paraesophageal Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Postoperative Packed Red Blood Cells	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-
Conduit Necrosis Req. Surgery ²	-	-	-	-
Delayed conduit emptying req. intervention				
or maint. of NG drainage > 7 days post op ¹	-	-	-	-
Clostridium Difficile infection ²	-	-	-	-
Other GI event	-	-	-	-
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-

¹Available with v2.2 only, population only includes those patients

²Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Fundoplication, Paraesophageal Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 18: Fundoplication, Paraesophageal Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-

**STS General Thoracic Surgery Database
Fundoplication, Routine Hiatal Hernia**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

Primary Procedure Indicated as:

- Laparoscopy, surgical, esophagogastric fundoplasty (e.g., Nissen, Toupet procedures) (43280)
- Nissen fundoplasty- laparotomy (includes partial fundoplication/wrap) (43327)
- Transthoracic Fundoplication- open thoracotomy (includes Belsey/Nissen) (43328)

STS General Thoracic Surgery Database
Fundoplication, Routine Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 19: Fundoplication, Routine Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
INCIDENCE				
DEMOGRAPHICS				
Age (years)				
Mean				
Median				
25 th Percentile				
75 th Percentile				
Gender, Female	-	-	-	-
Race				
Caucasian	-	-	-	-
Black	-	-	-	-
Asian	-	-	-	-
Native American	-	-	-	-
Native Hawaiian/Pac Islander	-	-	-	-
Other	-	-	-	-
Multiple Races ¹	-	-	-	-
Missing , Unknown, or Not Documented	-	-	-	-
COMORBIDITIES				
Body Mass Index ²				
Underweight (BMI < 18.5)	-	-	-	-
Normal (BMI 18.5 - 24.9)	-	-	-	-
Overweight (BMI 25.0 - 29.9)	-	-	-	-
Obese I (BMI 30.0 - 34.9)	-	-	-	-
Obese II (BMI 35.0 - 39.9)	-	-	-	-
Morbid Obesity (BMI 40.0+)	-	-	-	-
Missing height	-	-	-	-
Missing weight	-	-	-	-
Hypertension	-	-	-	-
Steroids	-	-	-	-
CHF	-	-	-	-
Coronary artery disease	-	-	-	-
Peripheral vascular disease	-	-	-	-

¹ When more than one race is indicated

²BMI = Weight(kg) / Height(m)², excludes BMI values of < 5 or > 100

STS General Thoracic Surgery Database
Fundoplication, Routine Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 19: Fundoplication, Routine Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
COMORBIDITIES - continued				
Pre-op chemotherapy	-	-	-	-
Pre-op XRT	-	-	-	-
Prior CTS	-	-	-	-
Insulin-Dependent Diabetes	-	-	-	-
Renal Insufficiency (Creatinine >=2 or Dialysis)	-	-	-	-
Zubrod Score				
Normal Activity, no symptoms	-	-	-	-
Symptoms but fully ambulatory	-	-	-	-
Symptoms, in bed < 50% of the time	-	-	-	-
Symptoms, in bed > 50% but < 100%	-	-	-	-
Bedridden	-	-	-	-
Moribund	-	-	-	-
Missing	-	-	-	-
PROCEDURES				
Category of Disease				
Barrett's esophagus-530.85	-	-	-	-
Gastroesophageal reflux (GERD)-530.81	-	-	-	-
Intraoperative Blood Transfusion (PRBC)	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
ASA				
Class I	-	-	-	-
Class II	-	-	-	-
Class III	-	-	-	-
Class IV	-	-	-	-
Class V	-	-	-	-

STS General Thoracic Surgery Database
Fundoplication, Routine Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 19: Fundoplication, Routine Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
ASA - continued				
Class VI	-	-	-	-
Missing	-	-	-	-
Cigarette Smoking				
Never Smoked	-	-	-	-
Past Smoker (> 1 month prior)	-	-	-	-
Current Smoker	-	-	-	-
Unknown ¹	-	-	-	-
Preoperative PFTs				
FEV, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
DLCO, % predicted				
Mean				
Median				
25 th Percentile				
75 th Percentile				
MORTALITY				
In-hospital mortality	-	-	-	-
Operative mortality	-	-	-	-
LENGTH OF STAY				
Total LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				

¹Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Fundoplication, Routine Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 19: Fundoplication, Routine Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Post-operative LOS				
Mean				
Median				
25 th Percentile				
75 th Percentile				
POST-OPERATIVE EVENTS				
Unexpected Return to OR	-	-	-	-
Primary Reason for Retrun to OR ¹				
Bleeding	-	-	-	-
Anast. Leak following esoph. Surgery	-	-	-	-
Bronchopleural Fistula	-	-	-	-
Empyema	-	-	-	-
Chylothorax req. surgical ligation of thoracic duct	-	-	-	-
Other	-	-	-	-
Pulmonary				
Air leak >5 days duration	-	-	-	-
Atelectasis req. bronch	-	-	-	-
Pleural Effusion req. drainage	-	-	-	-
Pneumonia	-	-	-	-
ARDS	-	-	-	-
Respiratory Failure	-	-	-	-
Bronchopleural fistula	-	-	-	-
Pulmonary embolus	-	-	-	-
Pneumothorax	-	-	-	-
Initial vent support >48h	-	-	-	-
Reintubation ²	-	-	-	-
Tracheostomy	-	-	-	-
Tracheobronchial Injury ³	-	-	-	-
Other pulmonary event	-	-	-	-
Cardiovascular				
Atrial arrhythmia req. Rx	-	-	-	-
Ventricular arrhythmia req. Rx	-	-	-	-

¹ Among patients who had an unexpected return to the OR

² Available with v2.2 only, population only includes those patients

³ Available with v2.3 only, population only includes those patients

STS General Thoracic Surgery Database
Fundoplication, Routine Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 19: Fundoplication, Routine Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Cardiovascular - continued				
Myocardial infarct	-	-	-	-
DVT req. Rx	-	-	-	-
Other CV event	-	-	-	-
Urologic				
Urinary tract infection	-	-	-	-
Urinary retention req. Catheterization	-	-	-	-
Discharged with Foley catheter	-	-	-	-
Infection				
Empyema	-	-	-	-
Sepsis	-	-	-	-
Another Infection req. IV antibiotics	-	-	-	-
Surgical Site Infection				
None	-	-	-	-
Superficial	-	-	-	-
Deep	-	-	-	-
Organ space (empyema, mediastinitis)	-	-	-	-
Missing	-	-	-	-
Hematology				
Postoperative Packed Red Blood Cells	-	-	-	-
Number of PRBC Units Used				
1 Packed Red Blood Cell Unit	-	-	-	-
2 Packed Red Blood Cell Units	-	-	-	-
3 Packed Red Blood Cell Units	-	-	-	-
4+ Packed Red Blood Cell Units	-	-	-	-
Missing	-	-	-	-
Gastrointestinal				
Gastric outlet obstruction ¹	-	-	-	-
Ileus	-	-	-	-
Anastomotic leak req. medical Rx only	-	-	-	-
Dilation esophagus within post-operative period	-	-	-	-

¹Available with v2.2 only, population only includes those patients

STS General Thoracic Surgery Database
Fundoplication, Routine Hiatal Hernia

Participant 99999
STS Period Ending 12/31/2016

Table 19: Fundoplication, Routine Hiatal Hernia, Last 3 Years, Jan 2014 - Dec 2016 - continued

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Gastrointestinal - continued				
Conduit Necrosis Req. Surgery ¹	-	-	-	-
Delayed conduit emptying req. intervention or maint. of NG drainage > 7 days post op ¹	-	-	-	-
Clostridium Difficile infection ¹	-	-	-	-
Other GI event	-	-	-	-
Neurology				
New central neurological event	-	-	-	-
Recurrent laryngeal nerve paresis or paralysis	-	-	-	-
Delirium	-	-	-	-
Other neurological event	-	-	-	-
Miscellaneous				
Chylothorax req. drainage/medical Rx	-	-	-	-
Other events req. OR with general anesthesia	-	-	-	-
Unexpected Admission to ICU	-	-	-	-
New renal failure per RIFLE criteria	-	-	-	-

¹Available with v2.3 only, population only includes those patients

**STS General Thoracic Surgery Database
Missing Data Summary**

**Participant 99999
STS Period Ending 12/31/2016**

Inclusion Criteria

All Surgical procedures performed between Jan 2014 - Dec 2016

**STS General Thoracic Surgery Database
Missing Data Summary**

**Participant 99999
STS Period Ending 12/31/2016**

Table 20: Missing Data Summary, Last 3 Years, Jan 2014 - Dec 2016

	2014	Participant 2015	2016	STS Jan 14-Dec 16
Total Number of Operations				
No Primary Procedure Information	-	-	-	-
Overall (Missing any of the Required Fields)	-	-	-	-
Missing Age	-	-	-	-
Missing Gender	-	-	-	-
Missing Patient's Race Documented ¹	-	-	-	-
Missing Race (None Indicated)	-	-	-	-
Missing Race - Caucasian	-	-	-	-
Missing Race - Asian	-	-	-	-
Missing Race - Black/African American	-	-	-	-
Missing Race - American Indian/Alaskan Native	-	-	-	-
Missing Race - Native Hawaiian/Pacific Islander	-	-	-	-
Missing Admission Status	-	-	-	-
Missing Primary Payor ¹	-	-	-	-
Missing Surgeon National Provider Identifier	-	-	-	-
Missing Taxpayer ID# ¹	-	-	-	-
Missing Cigarette Smoking	-	-	-	-
Missing Pulmonary Function Tests Performed	-	-	-	-
Missing Forced Expiratory Volume Test Performed	-	-	-	-
Missing FEV1 Predicted	-	-	-	-
Missing Zubrod Score	-	-	-	-
Missing Category of Disease - Primary	-	-	-	-
Missing Date of Surgery	-	-	-	-
Missing OR Entry Time	-	-	-	-
Missing OR Exit Time	-	-	-	-
Missing Procedure Start Time	-	-	-	-
Missing Procedure End Time	-	-	-	-
Missing ASA Classification	-	-	-	-
Missing Procedure	-	-	-	-
Missing Patient Disposition	-	-	-	-
Missing Lung Cancer	-	-	-	-
Missing Esophageal Cancer ²	-	-	-	-
Missing Postoperative Event Occurred	-	-	-	-
Missing Discharge Date	-	-	-	-
Missing Discharge Status	-	-	-	-
Missing Status 30 Days After Surgery	-	-	-	-

¹Population includes v2.3 patients only

²Population includes v2.2 patients only